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ABSTRACT

Despite limited research due to lack of funding and inadequate program evaluations, enough evidence has accumulated to indicate that quality bilingual programs can meet the goal of providing equal educational opportunity for students from non-English speaking backgrounds. A review of existing research supports this statement. In almost all cases, children in the bilingual programs performed as well as or significantly better than those in the control group. One carefully conducted longitudinal study showed mixed results, possibly because students in the bilingual program were introduced to reading in Spanish and English at the same time. A recent study by Finnish researchers on the achievement of Finnish immigrant children in Sweden may have revolutionary significance for the education of linguistic minorities. Their evidence suggests that if children are submersed in instruction in another language before the age of ten, this exerts a destabilizing effect on the development of their native language as a tool for cognitive organization, especially if the children are members of a minority group. At a more fundamental level, the issue may be one of the relative social and cultural status of groups in the community. These issues, vital to the success of bilingual education, can be resolved only by continued research. (AMH)

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RESEARCH EVIDENCE FOR THE EFFECTIVENESS OF BILINGUAL EDUCATION

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Bilingual Education

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RESEARCH EVIDENCE FOR THE EFFECTIVENESS OF BILINGUAL EDUCATION

EXECUTIVE SUMMARY

Rudolph C. Troike

Although over half a billion dollars has been spent on bilingual education since 1968, less than one-half of one percent has been spent for research. Criticisms of the effectiveness of bilingual programs should take into account the lack of basic and operational research needed to improve program quality. Despite the need for research, funds appropriated for this purpose have been reallocated. The present study provides evidence from 12 programs attesting to the effectiveness of bilingual education. In several instances, student achievement in English has risen to or above national norms, while the students have additionally acquired skills in their native language. The conclusion is reached that a quality bilingual education program can be effective in meeting the goals of equal educational opportunity for minority language children, and if a program is not doing so, something is wrong with the program (though the locus of the problem may be external to the instructional program itself). Research on Finnish immigrants in Sweden is cited to show the effect of social and cultural subordination in producing subtractive bilingualism unless strong native language instruction is provided through age 10.

RESEARCH EVIDENCE FOR THE EFFECTIVENESS OF BILINGUAL EDUCATION

When the Bilingual Education Act (Title VII) was launched in 1968, it was, unlike the moon landing program or federal efforts in public health, undertaken largely as an act of faith, with little research to support it. Beyond the a priori declaration of a number of linguists and language teaching specialists at a UNESCO conference in 1951 (UNESCO 1953), and positive reports from a few scattered projects in the U.S. and elsewhere (Modiano, 1968, 1973; Engel, 1975), there was virtually no research base upon which to build and service the needs of this great educational experiment.

In spite of the lack of research, no provision for funding of research was included in the original legislation, and even when it was added by Congress in 1974 (as a result of efforts by the Center for Applied Linguistics), the Office of Bilingual Education did not include it in their budget request until 1976 (only after the present writer had pointed out the need to the Director of OBE). At that time, $2 million out of a total budget of $135 million was appropriated for this purpose for 1977-78 -- but unfortunately, most of this has been subsequently reallocated for other activities. The National Institute for Education since its inception in 1972 has spent in excess of half a million dollars attempting to determine priorities for research in bilingual education, while actual basic research has received little more than twice that amount (NIE, 1976, 1977).[1]

Thus, although over $500 million -- half a billion -- has been spent on bilingual education in the last 10 years, less than one-half of one percent of that total has been spent on research -- with the result that we have very little more of a research base for bilingual programs that we did 10 years ago.

Such a situation would not be conceivable in the military or medical fields, and should not be tolerated in education. When national evaluations by the Congressional General Accounting Office (GAO) or the American Institutes for Research (AIR) find grave shortcomings in bilingual programs, the almost total lack of funding for the research needed to improve them should be kept in mind. Additional research funding has been budgeted for the coming year, but much of it has already been redirected for other purposes.

Bilingual education is in critical need of research, both basic and operational, and unless it receives this support, this great experiment could become just another passing effort in the history of American education which failed to achieve its goals -- to the detriment of millions of school children and of our whole society. The relation of quality to equal educational opportunity has been underscored by a recent judicial decision in New York state (Rios vs Read) which held that an inadequate bilingual program did not meet the compliance requirements of the Lau decision and the Civil Rights Act. Educators, legislators, and others concerned with quality programs, and with the future of bilingual education, should insist on the adequate funding of research, even at the expense of other activities if necessary, for the achievement of equal educational opportunity for children from non-English speaking backgrounds crucially depends upon it.

In reviewing the research evidence relating to the effectiveness of bilingual education, we must bear in mind that lack of funding has severely limited the amount of research data available. A certain amount of information comes from doctoral dissertations or small-scale studies (often carried out at the personal expense of the doctoral candidate or individual investigator), while some evidence can be drawn from program evaluations. Unfortunately, although evaluations should be a prime source of data on program results, the vast majority of them are worthless for this purpose. As an indication of the extent of their inadequacy, when the Center for Applied Linguistics surveyed over 150 evaluation reports as part of its work in developing the master plan for the San Francisco schools to respond to the Lau vs Nichols decision by the Supreme Court, only seven (7) evaluations were found which met minimal criteria for acceptability and contained usable information. As an independent corroboration of this CAL experience, a survey of 108 evaluations and 76 research studies by the Northwest Regional Educational Laboratory rejected all but three (3) of the evaluations and twelve (12) of the studies (Zappert and Cruz, 1977). It is interesting to note that the Title VII office two years ago discarded eight years of accumulated evaluation reports, which in any event apparently had had little effect on decisions regarding project funding (Alkin, et al, 1974:51).

Because program evaluations can be of such potential benefit to programs and because they are one of the few available sources of research evidence for program effectiveness, I have chosen to reproduce here the list of shortcomings which led Zappert and Cruz (1977:4-6) to reject more than 97 percent of the reports they surveyed, in the hope that future evaluations may be designed to overcome some of these failings:

1. No control for socioeconomic status;

2. Inadequate sample size, improper techniques, or excessive attrition rate;

3. No baseline comparison data, no control group, no non-relevant comparison;

4. No control for initial language dominance;

5. Significant differences in teacher qualifications or characteristics, or other confounding variables;

6. Insufficient statistical information or improper statistical applications; and

7. For research reports, lack of immediate relevance, new data, or accessibility.

Despite the lack of research and the inadequacy of evaluation reports, enough evidence has now accumulated to make it possible to say with confidence that quality bilingual programs can meet the goal of providing equal educational opportunity for students from non-English speaking backgrounds. In fact, the evidence is sufficiently strong to permit the statement that if a program is not producing such results, something is wrong (though not necessarily with the program) and needs to be changed. The state of the art of bilingual education has progressed -- at least in a few places -- to the point where we should not feel it necessary to excuse bad programs just because they are bilingual: such programs are not good for students and they do the cause of bilingual education an injustice. Unfortunately, there are still too many bad programs in this country, as the AIR report has shown (Danoff, 1978). While the AIR study can and should be faulted for its inadequacies -- and there are many grounds for doing so (for detailed critiques see Cárdenas, 1977; Gray, 1977, 1978; and O'Malley, 1978) -- not all of the negative findings can be easily dismissed, and bilingual educators should take this report

seriously as a challenge to improve the quality of programs. To ignore it because of its weaknesses and pretend that all is well would be disastrous for bilingual education, as well as for the students it is intended to serve.

The following results are drawn in part from the survey conducted by the Center for Applied Linguistics, and unless indicated otherwise, are based on unpublished evaluations of Title VII programs.

1. Philadelphia, PA (Spanish):

In a third-year program, both Anglo and Spanish-speaking kindergarten students in the bilingual program exceeded the city-wide mean and a control school group on the Philadelphia Readiness Test (a criterion referenced test), and attendance records were better than in the control group.

2. San Francisco, CA (Chinese):

Chinese-dominant students in the Title VII bilingual program in 1975-76 were at or above district and national norms in English and math in three out of six grades, and only .1 (one month) below in two others, as measured by the Comprehensive Test of Basic Skills (CTBS). (In addition, English-speaking students in the program performed at or above national and district norms in all grades, demonstrating that the time spent learning Cantonese did not detract from English language development.)

3. San Francisco, CA (Spanish):

The Spanish Title VII bilingual program students in the

7th grade showed two months greater gain than regular district students on the CTBS during 1975-76, and were only .1 below other district students in the same schools. Additionally, the absenteeism among bilingual program students was less than one-third that of the regular program students (3.6 percent compared to 12.1 percent).

4. Lafayette Parish, LA (French):

Students in grades K-3 in the French-English bilingual program performed as well as or significantly better than a control group of students in the regular program in all areas tested, including reading and reading readiness, linguistic structures, writing, math concepts, and social science. Instruments used included the Primary Abilities Test, the Metropolitan Achievement Test, and a criterion referenced test for French.

5. Artesia, NM (Spanish):

On the Comprehensive Test of Basic Skills, Spanish-dominant children in the bilingual program scored significantly higher than the control group in grades 3 and 4 in English and reading, while even English-dominant children in the program scored higher than their control group. In general, the control group children continued to lose positive self-image while the bilingual program children maintained or increased it.

6. Orleans Parish, LA (Spanish):

On the Inter-American Test series, Latino children showed a gradual measurable gain in comparison with an Anglo reference group from pre-school through grade three, and by third grade out-performed their Anglo peers in general ability when tested in both English and Spanish.

7. New York City, NY (Spanish, Chinese):

A survey of 30 evaluation reports for 1976 from New York City yielded only five which provided comparable data. Attendance figures from five secondary schools revealed that students enrolled in bilingual programs consistently had a 10 percent higher average daily attendance rate than the school as a whole. In addition, studies of several other projects have demonstrated strongly positive results.

8. St. John Valley, MN (French):

In 1969, prior to the beginning of the bilingual program, as many as 80 percent of students scored below grade level in language and math on the SAT. By the sixth grade, the median score in science was 1.5 years below grade level. Randomly-selected bilingual-medium schools were matched with all-English control schools having students of comparable IQ and socioeconomic status, and after five years (1970-75), bilingually-trained students were found to out-perform students in the control schools in English language skills and math, and have continued to remain ahead ever since. Figures for 1974-75 show that students in the

bilingual program achieved average or above-average stanines in all subject areas on the MAT in grades 1-4. At the secondary level, project students scored within the 4-6 stanine range in English reading, math, and language arts on the SRA Achievement Test. In addition, students in the bilingual schools showed major gains in self-concept (Dubé and Hebert, 1975; Lambert, Giles, and Picard, 1975; Veilleux, 1977).

9. Rock Point, AZ (Navajo):

Stanford Achievement Test scores from 1975 for reading achievement in English in the 4th and 5th grades were only .6 and .5 years below national norms, respectively, compared to 1.3 and 1.6 years below in 1972 when bilingual education began. Fifth-grade reading scores for other BIA Navajo Area schools (without bilingual education) are 1.6 years below Rock Point. 1976 test scores showed even better results: 5th graders were only one month (.1) below the national norm, and 6th graders were one month above the national norm (Rosier and Farella, 1976).

10. Santa Fe, NM (Spanish):

A longitudinal evaluation by Leyba of students in a bilingual program from grades 2 through 6 (1972-77) was made using the Metropolitan Achievement Test, and taking samples of students in the same schools but not in the bilingual program as a comparison group. In math, the bilingual group began slightly below the comparison group and the national norm on the MAT

in the second grade, but by the third grade had surpassed the comparison group, and by the end of the fourth grade had exceeded the national norm as well, remaining above both through the end of the sixth grade. In English reading, the bilingual group was above the comparison group each year, and closely approximated the national norm in grades 5 and 6. Three other groups which had been in the bilingual program three and four years were also consistently above their respective comparison groups after the first year both in math and English reading (Leyba, 1973).

The studies by Rosier and Farella with the Navajo and Leyba in Santa Fe are both important in suggesting that bilingual instruction may have a cumulative effect, and that longitudinal studies with control groups and standardized tests are necessary to determine this effect, which may not be shown by short-term, one-year-at-a-time evaluation.

11. New Haven, CT (Spanish):

Of forty-five children (experimentals) in a bilingual program using a team-teaching approach and 27 in a regular program (controls), all Spanish-dominant, in grades K-3, the experimentals in both grades 2 and 3 achieved a greater growth in Spanish and English reading than did the controls, as measured by the Inter-American series and the MAT. Only in the bilingual class did the children test at grade level or above on the MAT. Thirteen children in the regular program were

retained at the end of the year versus only one in the bilingual program (Plante, 1977).

12. Douglas, AZ (Spanish):

Thirty-one matched pairs of students selected from the bilingual program and from the regular program (using the Peabody Picture Vocabulary Test as a basis for matching) were administered the MAT in the spring of 1974 after 2 years in the program; 19 of these pairs subsequently took the Wide Range Achievement Test (WRAT) battery in 1975. In the second grade, the bilingual program students scored slightly lower on the English MAT than the controls (mean: 120 vs 128) and slightly higher on the Spanish MAT, though the differences were not significant. But by the third grade, bilingual program students out-performed the control group in English in reading (62 v. 51), spelling (34 v. 32), and arithmetic (31 v. 29) and were ahead of the controls in Spanish as well. In addition, the bilingual program students exceeded the norm in English reading for their age level on the WRAT (62.47 v. 61.16). (Saldate and Mishra, 1978)

In their study, Zappert and Cruz (1977) encountered a total of 66 findings in the three evaluations and 12 research studies which met their criteria. Of these, only 1 percent were negative, 58 percent were positive, and 41 percent were neutral. They go on to make the important observation that,

> ...a non-significant effect is not a negative finding with respect to bilingual education. A non-significant effect, that students in bilingual education classes are learning at the same rate as students in monolingual classes, demonstrates the fact that learning in two languages does not interfere with a student's academic

> and cognitive performance. Students in bilingual classrooms have the added advantage of learning a second language and culture without impeding their educational progress. Under these circumstances, a non-significant finding can be interpreted as a positive effect on bilingual education.

Among the evaluations they include, using data taken from an earlier AIR review, is one from Houston, Texas (in aggregating data from all sites, AIR in its final report obscured important differences in data from specific locales). They report that for 1972-73, 822 Spanish-dominant students in grades 1-4 in a bilingual program in Houston performed significantly better than a control group on the English versions of the Inter-American math and general abilities test series.

One of the most carefully conducted longitudinal studies of a bilingual program is that by Cohen (Cohen, et al, 1975; Cohen and Laosa, 1976) in Redwood City, California, which has shown some -- perhaps instructively -- mixed results with regard to reading achievement scores. Three separate classes of students in the bilingual program scored significantly below a comparison group in English reading scores, and one bilingual class (the first, pilot group) scored below the comparison group in Spanish reading -- even though the latter had received no instruction in Spanish. (This is a common experience in immersion programs, demonstrating that reading skills are transferable. However, more typical are the Douglas, Arizona, data in which English-instructed students did far worse than bilingual program students in Spanish reading, with means of 18 vs 73 (Saldate and Mishra, 1978).

One possible reason for these effects in the Redwood City program is that students in the bilingual program were introduced to reading in both

Spanish and English at the same time, a factor which may have served to retard their reading competency in both languages. Unfortunately, this is a widespread pattern among bilingual programs (52 percent of Title VII programs in 1969-70 showed this pattern). In addition, although the program was supposed to involve a balanced use of two languages, observation showed that teachers employed English 67 percent of the time, perhaps helping to perpetuate a negative perception of Spanish, and perhaps also not providing sufficient instruction in Spanish to meet students' learning needs. Whatever the factors affecting student achievement in this program, it is clear that it is (or was) not succeeding to the extent that other programs cited above indicate is possible, leading to the conclusion that some elements inside or outside the program need to be changed.

As Cohen and Laosa (1976), Engle (1975) and others have pointed out, one of the greatest difficulties in determining the source of positive or negative effects in bilingual programs has been in the inadequacy or incommensurability of reported data. Although excessive use of English in the classroom is a common experience in bilingual programs, for example, evaluations and studies rarely document this factor. (Legaretta (1977), for instance, found English being used 70 percent of the time in one program.)

A potentially important research project currently underway at UCLA is seeking to determine student and other factors which might predict academic success for Spanish-speaking students completing a transitional bilingual program. Findings of a pilot study indicate that English vocabulary knowledge is one of the most significant factors in predicting a number of measures, particularly English reading proficiency, whereas Spanish reading proficiency

is the most stable predictor for English reading proficiency (Fischer and Cabello, 1978). Until we have better information on what conditions promote or retard achievement, however, the general rubric 'bilingual program' will not prove very helpful in efforts to determine why bilingual education has succeeded in some circumstances more than in others.

A recent study by two Finnish researchers on the achievement of Finnish immigrant children in Sweden may have revolutionary significance for the education of linguistic minorities. Skutnabb-Kangas and Toukomaa (1976, 1977), in a study for the Finnish UNESCO Commission, found that if children immigrated to Sweden when they were of pre-school or primary-level age, they fell within the lower 10 percent of Swedish children in Swedish language skills. However, if they were 10 to 12 years of age when they immigrated, and had had five to six years of education in their native language in Finland, they were much more likely to approach the norms of Swedish students when both were tested in Swedish. In particular, achievement in math, chemistry and physics correlated highly with Finnish language skills. Similar anecdotal observations have been made of children who immigrate to the U.S. from Mexico after the sixth grade. It is a common experience that such students rather quickly acquire English and soon out-perform Chicano students who have been in U.S. schools since the first grade.

The Finnish researchers present powerful evidence to suggest that if children are submersed in instruction in another language before the age of ten, it exerts a destabilizing effect on the development of their native language as a tool for cognitive organization, and they may fail to acquire the ability to use the second language for such purposes, with the result

that they become semilingual, i.e., not fully competent to carry out complex cognitive operations in either language. (This, incidentally, should not be confused with the ability of many bilinguals to code-switch, which is a very special linguistic skill.)

These findings, which indicate that the best educational solution might be to provide schooling entirely in the student's native language for the first five grades, appear, at least superficially, to contradict the well-known results of experiments in 'immersion' programs for English speakers in Canada and the U.S. (Lambert and Tucker, 1972; Cohen, 1975). In such programs, it has been demonstrated that students continue to achieve at grade level in English even though they have received no instruction in it. How can this contradiction be explained?

The most probable explanation derives from the fact that both the Finnish and Chicano children belong to dominated minorities. Such students, in beginning their education in a second language, are subjected to various forms of discrimination and disvaluation of their language and culture during a critical developmental period, while students who have escaped this experience quickly overcome the language barrier and function successfully in their second language. The difference then, may be ascribed to what Lambert has called subtractive vs additive bilingualism.

But at an even more fundamental level, the issue may not be one of language at all, but rather the relative social and cultural status of groups in the community. It is significant that the children who succeed so notably in immersion programs are for the most part middle-class children from supportive homes whose language and culture are in no way threatened or demeaned

by their being taught in another language. In the Finnish research, on the other hand, it has been shown children's competence in their native language declines sharply when they begin school in a second language. It is this latter type of situation which characterizes most linguistic minority groups in this country.

These considerations would suggest that the success of bilingual education in providing equal educational opportunity for subordinated minorities may rest on matters far deeper and more fundamental than the merely linguistic. That this is not simply a question of providing a 'warm, accepting environment,' however, or attempting to enhance the student's self-concept, is shown by the fact that programs which do both may still fail to produce any improvement in achievement. The whole issue, as with many others, is one which can be resolved only by much more basic -- not just operational -- research than we have at present.

Footnotes

1 This figure for basic research was arrived at by adding the amounts reported in these sources for funded projects, excluding all projects which were clearly for dissemination, evaluation, materials development, conferences, and operational (applied or programmatic) research, but including estimated percentages of funds for projects which had basic research as one of their components. In recent years there has been an effort on the part of some federal agencies to treat all "knowledge production and utilization" (KPU) as research, but this approach to the definition of research is rejected here, and a fairly narrow definition of basic research adopted.

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